Student Misconceptions Essay Assignment

DUE electronically to instructor by class on February 9, 2010

According to research in *How People Learn* (Bransford, et al.) expert teachers:

* Know the structure of the knowledge in their disciplines
* Know the conceptual barriers that are likely to hinder learning
* Have a well-organized knowledge of concepts and inquiry procedures and problem-solving strategies (based on pedagogical content knowledge).

Additionally, research has shown that teaching is unlikely to be effective unless it takes learners’ ideas into account. By identifying these ideas, teachers are able to recognize opportunities and design interventions that help their students bridge their current understandings to the scientifically accepted view. To do this, teachers must have deep understanding of the central facts, principles, ideas, and important generalizations as well as an organizing conceptual framework for all the information they are required to teach.

Students bring a wealth of information to school with them in kindergarten. From the moment they are born, they are collecting information, making connections, and learning. However, scientific concepts are often misrepresented or misconstrued in students’ everyday lives. Take “energy” for instance. How many times have you heard that “caffeine gives you energy???”

Your task is to write an essay (~2 pages, typed) on the issue of student misconceptions. Some questions that you ***may*** consider as you write this essay are listed below:

* What are some common misconceptions students have in your specific area of interest in science?
* How could these misconceptions affect their perceptions of other issues/areas in science?
* What will you, as their instructor, need to do to help them overcome these misconceptions?
* What is your definition of scientific literacy?